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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,239	11/26/2003	I-Ru Liu	BHT-3111-380	6111
7590 BRUCE H. TROXELL SUITE 1404 5205 LEESBURG PIKE FALLS CHURCH, VA 22041			EXAMINER HAROON, ADEEL	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 10/18/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/721,239

**Applicant(s)**

LIU, I-RU

**Examiner**

Adeel Haroon

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-13, 15-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to Amendment filed on date: 6/15/07.

Claims 1, 2, 4-13, and 15-19 are still pending.

### ***Response to Arguments***

2. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Newly added claim 19 is dependant from cancelled claim 3.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4-8, 10-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (U.S. 5,974,083) in view of Propp et al. (U.S. 2005/0069064).

With respect to claim 1, Fujita discloses a system for RF gain control with a receiver for receiving a RF signal in figure 4. Fujita discloses a signal-sampling device, element number 22, for retrieving a signal strength information from the RF signal (Column 1, lines 23-24). Fujita also discloses a noise-sampling device, element number 23, for retrieving noise information from the RF signal (Column 1, lines 25-29). Fujita further discloses an operation unit, element numbers 24 and 25, for generating a feedback control signal according to the signal strength and noise information, wherein the operation unit provides the feedback control signal to element number 19 in the receiver to adjust a gain value thereof (Column 1, lines 30-43). Fujita does not expressly disclose a detector for detecting a time interval between frames and a processor for controlling gain control system with frame information. However, Propp et al. teach sampling noise during an inter-frame gap for generating feedback control signals

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(Paragraph 13). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Propp et al.'s noise sampling during an inter-frame gap in Fujita's system in order to better detect noise levels in the received signal (Propp et al.: Paragraph 3)

With respect to claim 2, Fujita discloses that the operation unit couples the signal strength and noise informations to generate the feedback control signal (Column 1, lines 30-43).

With respect to claim 4, Propp et al. disclose that the frame is a data frame (Paragraph 4).

With respect to claim 5, Propp et al. disclose that the noise is sampled during a short inter-frame space (Paragraph 13).

With respect to claim 6, Propp et al.'s sampling is a gate operation (Paragraph 13).

With respect to claims 7 and 8, Propp et al. teaches only sampling the noise during the inter-frame space; therefore, inhibiting/suspending the first processor the gain control operation during non-receiving mode (Paragraph 43).

With respect to claim 11, Fujita further discloses a second processor, element number 24, for generating a signal quality information according to the signal strength and noise informations (Column 1, lines 30-43).

With respect to claim 12, Fujita further discloses the signal quality information is signal-to-noise ratio (Column 1, lines 38-42).

With respect to claim 13, Fujita discloses a method for gain control with receiving a RF signal and retrieving a signal strength information from the RF signal (Column 1, lines 23-24). Fujita also discloses retrieving a noise information from the RF signal (Column 1, lines 25-29). Fujita further discloses adjusting a gain value according to the signal strength and noise informations (Column 1, lines 30-43). Fujita does not expressly disclose a detector for detecting a time interval between frames and a processor for controlling gain control system with frame information. However, Propp et al. teach sampling noise during an inter-frame gap for generating feedback control signals (Paragraph 13). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Propp et al.'s noise sampling during an inter-frame gap in Fujita's system in order to better detect noise levels in the received signal (Propp et al.: Paragraph 3)

With respect to claim 15, Fujita further discloses generating a signal quality information according to the signal strength and noise informations (Column 1, lines 30-43).

With respect to claim 16, Fujita further discloses the signal quality information is signal-to-noise ratio (Column 1, lines 38-42).

With respect to claim 17, Fujita's feedback signals are interpreted as being selected from a group consisting of signal strength function, noise level function, sum of signal strength function and noise level function, and a larger of the signal strength function and the noise level functions (Column 1, lines 30-43).

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita and Propp et al. further in view of Kim et al. (U.S. 2003/0072397).

With respect to claims 9 and 10, the modified system of Fujita and Propp et al. is described above in the discussion of claim 1. Fujita does not disclose a transmitter being coupled to the receiver. However, Kim et al. discloses a transmitter being coupled to the gain control receiver (Paragraph 32). Kim et al. teach that when the receiver is in a state of not receiving data, when the transmitter is in a state of transmitting data, the first processor inhibits/suspends the gain control operation (Paragraph 43). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply the frame detecting and controlling technique of Kim et al. to the noise-sampling device of Fujita's system in order to only operate the sampling device when a frame is detected thus conserving power.

***Allowable Subject Matter***

8. Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The specific technique of obtaining the functions from a predetermined algorithm that the signal strength information and noise information are subtracted by a first and a

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second predetermined thresholds respectively, and then multiplied by a first and a second predetermined transfer functions to generate the signal strength function and the noise level function respectively was neither found nor fairly suggested in the prior art.

### ***Conclusion***

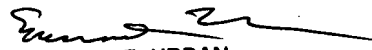
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH  
10/12/07

  
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